

Agriculture and the city: a sustained interplay





Metropolitan agriculture as an inexhaustible source of inspiration for more sustainable innovations

Agriculture is at present excellently placed to produce as much food as required at an affordable price.

Even so, agriculture also arouses resistance, due in particular to the poor sustainability of agricultural production methods. As well as that, there is all sorts of debate about the environmental and social impact of agriculture.

Spectacular growth

Over the last few decades, agriculture in the Western world, with the Netherlands leading the way, has undergone tumultuous development: yields per square metre have risen spectacularly, while food production costs have come down appreciably. Sufficient food is being cultivated at the present time to feed the entire world population. The fact that hunger is still prevalent in the world is due largely to the uneven distribution of prosperity and purchasing power.



Metropolitan areas are clearly visible from space at night as large patches of light on the Earth

Flip-side of the developments in agriculture

These agricultural developments do however have a flip-side. Agriculture makes excessive use of certain resources that are becoming ever scarcer: manure, water and energy. We are dealing with this as though they were still in plentiful supply, as was once the case. A significant element of the greenhouse gases that pose a threat to the climate stem from agriculture. In addition the use of nutrients and pesticides is generating environmental pollution, to the detriment of biodiversity and the landscape. On top of that the demands made by agriculture on the ever-shrinking availability of space has become the subject of debate: space is also needed for living, working, recreation and transport. Furthermore, ever more people consider that modern agriculture exacts an unacceptable price in terms of animal welfare. Result: resistance among members of the public and

consumers. Instead of taking pride of place on the victory dais, modern agriculture is being shown a yellow card.

Sustainable development

After the huge efficiency gains made in recent years, agriculture therefore once again faces a major challenge: developing towards a more sustainable method of production that is accepted and valued by society. And that is also profitable. If we just concentrate on improving the existing production processes, this won't succeed. A radical change in course will be required, and the way in which this could happen is becoming ever clearer.

Metropolitan agriculture

In 2005 a collective of knowledge institutes, entrepreneurs, non-governmental organizations and governments set up the TransForum innovation programme. TransForum was given two main tasks. First, to develop proposals to ensure that the Dutch agrosector can evolve more sustainably. Secondly, to indicate how the Dutch knowledge infrastructure can be adapted so that knowledge can be meaningfully deployed in order to put those proposals into practice.

Knowledge infrastructure

“Knowledge infrastructure” is generally taken as meaning collectives bringing together centres of expertise, government agencies, private industry and/or educational establishments with a view to the development and transfer of knowledge in a particular field. This involves intensive interaction between research, policy and practice.

Since then TransForum has investigated the problem and experimented with solutions. Its vision on the kinds of solutions required is clear. At the core of that vision is that connections need to be established (or re-established) between agriculture and the urban/metropolitan environment. This we refer to as “metropolitan agriculture”. The essence of metropolitan agriculture is that the urbanised environment in fact offers great opportunities for the more sustainable development of agriculture. Conversely, agriculture is indispensable for the more sustainable development of those urban areas. Metropolitan agriculture potentially covers many different kinds of agricultural activity and ways in which the agroproduction chain can be organised (such as agroparks, care farming and alternative forms

In the future: even more food required

According to the United Nations Food and Agriculture Organization (FAO), agricultural output will need to rise by around 70% over the next 40 years for everyone to be fed. The likelihood is that the future world population will have more income at its disposal and also demand higher quality food. There will be greater demand for dairy products, fresh meat and fruit and vegetables – preferably delivered fresh each day to consumers in the extensive cities of the future. So here is an additional challenge, on top of those that are already taking up so much of our attention today.

Competition between metropolises and agriculture

The world population is expected to grow explosively over the next few decades, from around six to over nine billion people. It is already clear at this stage that a high proportion of those billions of people will live in metropolises. Metropolises are huge, urbanised areas (for example the region between Paris, Antwerp, Rotterdam and Amsterdam is regarded by urban and rural planners as such a metropolis). The original cities from which these metropolises have arisen evolved in localities where the soil was at its most fertile – i.e. where the land is especially suitable for agriculture.

of distribution to help commercialise that sustainable value). In all cases, the activities must take place in a metropolitan environment, are explicitly concerned with the divergent needs of the urban population and make use of the urban characteristics of that environment.





Opposites become partners

Ongoing interaction between agriculture and its metropolitan environment is indispensable for the more sustainable development of agriculture in the Netherlands. Through this, new connections between agriculture and the city are generated. These act as a source of inspiration for innovation, are profitable, respect the environment and improve the welfare of both human beings and animals.

Separate worlds

Nowadays, with all the modern methods of food production, many people have little if any idea how their food is produced. The agricultural system as producer is at one end of the chain, and the urban dweller as consumer at the other. They retain connection with one another only via all sorts of intermediate links. This lack of familiarity leads to a lack of understanding and apparent conflicts of interest.

Producers have gradually become ever more specialised and have reduced their costs. Agriculture has become a highly efficient industrial-style sector. An important reason behind these changes in agriculture has in fact been the consumer, who kept demanding lower prices and strict quality controls. Until recently, the negative effects on the environment, such as soil pollution, the excessive use of energy and water and odour nuisance, were outweighed among producers and consumers by the lower costs. At the same time many consumers know little about the way in which their food is produced or how modern farms operate. Many still have a romanticised picture of a mixed farm with some cows, chickens and pigs, potatoes and wheat in the fields and a farmer's wife producing her own cheese, whereas in reality this has all but disappeared. The big distances between producer and consumer mean that there is little mutual understanding. The numerous links in the distribution chain mean that producers have little insight into what consumers really want.

On the other hand the consumer has no idea how much energy is required for a pound of tomatoes, but is guided chiefly by the price tag in the supermarket. While in the meat department the consumer wants tasty, tender cutlets at not too high a price. Furthermore, the consumer is far from consistent: as a citizen watching the evening news he or she will get agitated about agricultural CO₂ emissions, animal welfare in intensive livestock farming, the disappearance of historical landscapes and the high energy consumption in glasshouses. Whereas this is precisely what they help bring about in their role as consumer.

Connection between agriculture and society: an infinite range of possibilities

In order to have a right to existence in society, the way in which agricultural entrepreneurs go about their work must be consistent with the standards and values of the general public and consumers. By ingeniously exploring possible connections between the public's needs and what agriculture can offer, agriculture is in able to create added value for urban dwellers, for example by delivering products and services that go beyond agricultural production itself and that have not so far been automatically associated with agriculture. In this way, both agriculture and the metropolitan environment are able to benefit from their proximity to one another, not just as producers and consumers of the agricultural produce but in many other respects as well. A number of examples are provided at pages 8 and 9 by way of illustration.



Valuable agricultural landscape

Recreation, tourism, daytime activities, care farming and education are useful “by-products” that agriculture can offer urban dwellers. This does however call for agricultural entrepreneurs who are capable of thinking differently about their primary products. For if those so-called by-products are handled professionally, they can assume considerable significance for the urban environment and provide a useful supplement to farm incomes. The claim made by cities on agricultural land is also reduced as the land area obtains a range of functions going beyond agricultural production alone. Furthermore, it reduces the distance between city and countryside, creating room for greater mutual understanding.

FIRST EXAMPLE

Inexhaustible source of inspiration for innovations

It is precisely through the interaction between agriculture and its metropolitan environment that new ideas are generated for innovations leading to greater sustainability: innovations that help reduce the pressure on the scarce natural resources and lack of space. Ideas that respond to the demand and need of the urban consumer and that make use of the urban possibilities.

The essence of the message of metropolitan agriculture is that it is precisely the diversity, speed and complexity of the metropolitan society that provide the seedbed for bringing the agriculture of the future back into line with society's priorities as regards sustainability.

Achieving all this in practice is less straightforward than one might think. This is because people are used to achieving

their goals along traditional lines. In practice, however, these well-established paths do not deliver sufficient sustainability gains.

Taking genuinely lasting steps towards more sustainable development calls for a permanent, joint journey of exploration. For genuine innovations arise at the interfaces between businesses, industries and sectors. It is a quest that will never be entirely completed, not just because the environment and circumstances are continually changing but also because further improvements in sustainability will always be possible.

Such steps require the full range of shared creative and innovative capacity; the joint goal of sustainability can only be brought closer if everyone concerned puts their shoulder to the wheel.

Using one party's waste substances as a valuable raw material for another

Active cooperation between agriculture and other essential industries in an urban environment also contributes to a more sustainable society. Apparently worthless by-products and residual products generated by the one industry are often dumped as waste, whereas they can form a valuable raw material for another industry. It is precisely in agriculture, working as it does with products from nature, that the cradle-to-cradle concept that all waste is in fact food can be realised. The CO₂ and residual heat from oil refineries, for example, can provide a valuable input for the glasshouses in the Westland region. Slaughter waste can be used for energy generation, while glasshouses are able to produce energy. Interesting, more sustainable linkages can also be established between various specialisms within agriculture, for example between fish breeding and tomato cultivation, where the residual heat from the glasshouse is used to keep the water in which the fish live up to temperature, the water is used twice and the fish excreta are used as a nutrient for tomatoes.

SECOND EXAMPLE



Care-farming

THIRD EXAMPLE

Consumers make the difference in the step to greater sustainability

By communicating more actively with the consumer, agricultural producers are also able to make other positive features of their products tangible and of value to the consumer, such as flavour, the authenticity of regional products and the more sustainable and animal-friendly method of production. These positive features fail to come sufficiently into their own under the present marketing arrangements. If the consumer is aware of this, he or she is then able to base purchasing decisions on considerations other than just price. And through this more intensive contact with the consumer, producers become familiar with the latter's wishes and are able to respond to them more effectively.



New alliances indispensable for sustainable development

Successful agricultural entrepreneurs manage to deliver added value in new areas of activity other than traditional agricultural products and services. In doing so they are contributing to more sustainable development. This will succeed only if they continue to cooperate with allies some of whom will be new and who will often come from an unexpected quarter. This cooperation generates the necessary political and public support for their new activity.

Working hard to create new connections

A characteristic feature of all forms of metropolitan agriculture is the new connections that these involve. This often calls for cooperation with industries and sectors that have not been traditional partners of agriculture in the past. Examples include the cooperation between agriculture and care institutions, that between agriculture (as an energy producer) and energy companies, and that between oil refineries (as CO₂ suppliers) and horticulture. By creating such cooperative links it becomes possible to turn by-products and residual products into something of value.

Cooperation with governments and non-governmental organisations is also required, in that innovations nearly always run into obstacles as they do not fit in with the existing legislation and regulations. If an entrepreneur wants to recoup his investments in innovations aimed at greater sustainability, there need to be customers at the end of the chain who can see the innovative added value and are prepared to pay for it. Public support is therefore a precondition for successful innovations. To achieve this, it is necessary for governments and non-governmental organisations to be drawn into such innovative projects at an early stage. Since the sustainability issues are often complicated, cooperation is naturally also required with scientific institutes.

This concerns intensive cooperation among parties who may never have dealt with one another before and who will in certain cases even have been used to seeing each other as “the opponent”. These will be parties operating on the basis of differing motivations and interests and having different priorities for the sustainability values to be pursued. They will be parties who have not yet developed a natural, shared form of cooperation. Nevertheless it will be precisely those parties that need to learn to work together in the interests of more sustainable development. At project level this calls for the necessary efforts to get these parties to sit down together and discuss a shared goal. In TransForum’s practical projects the efforts in this regard have consistently proved more than worthwhile.

Linking up values instead of the negotiation of interests

If the parties pursue differing priorities in respect of the sustainable values to be achieved, the natural reaction is often to negotiate with one another in order to obtain the best possible result for each individual party. However, this rarely if ever leads to a satisfactory result for all the parties concerned, thereby leading in turn to a less than optimal sustainability result. This will, furthermore, enjoy no more than patchy support. In its practical projects TransForum has found that the key to genuine success in the realisation of greater sustainability does not lie in the negotiations concerning values or seeking to formulate a single shared value. In practice the most successful method is the formulation of a joint business plan in which the various values of the parties concerned find a visible place.





Grape harvest at MijnBoer, photo Peter Hardewijn

Essential allies in new collectives

Successful innovations in the field of more sustainable agriculture nearly always involve close cooperation among knowledge institutes, entrepreneurs, non-governmental organizations and governments. All the parties played a substantial role in the successful projects and actively set about coming up with new solutions for the challenges posed. The fact that they were working on the realisation of a goal that had been jointly defined in advance meant that the partners were much more closely involved in the project as a whole than they would have been otherwise. Each committed itself to the realisation of the ultimate goal. And on the way to the joint goal, new collectives arose. Depending on the type of project these consisted of similar or else entirely different stakeholders, who jointly developed business propositions. Thus the successful concept Mijn Boer managed to get off the ground only because it received backing from farmers. Agroparks, by contrast, are successful precisely because often widely differing players from other industries and other elements of the chain act in concert. Whatever the case may be: new allies in new collectives join forces in favour of more sustainable agricultural development.



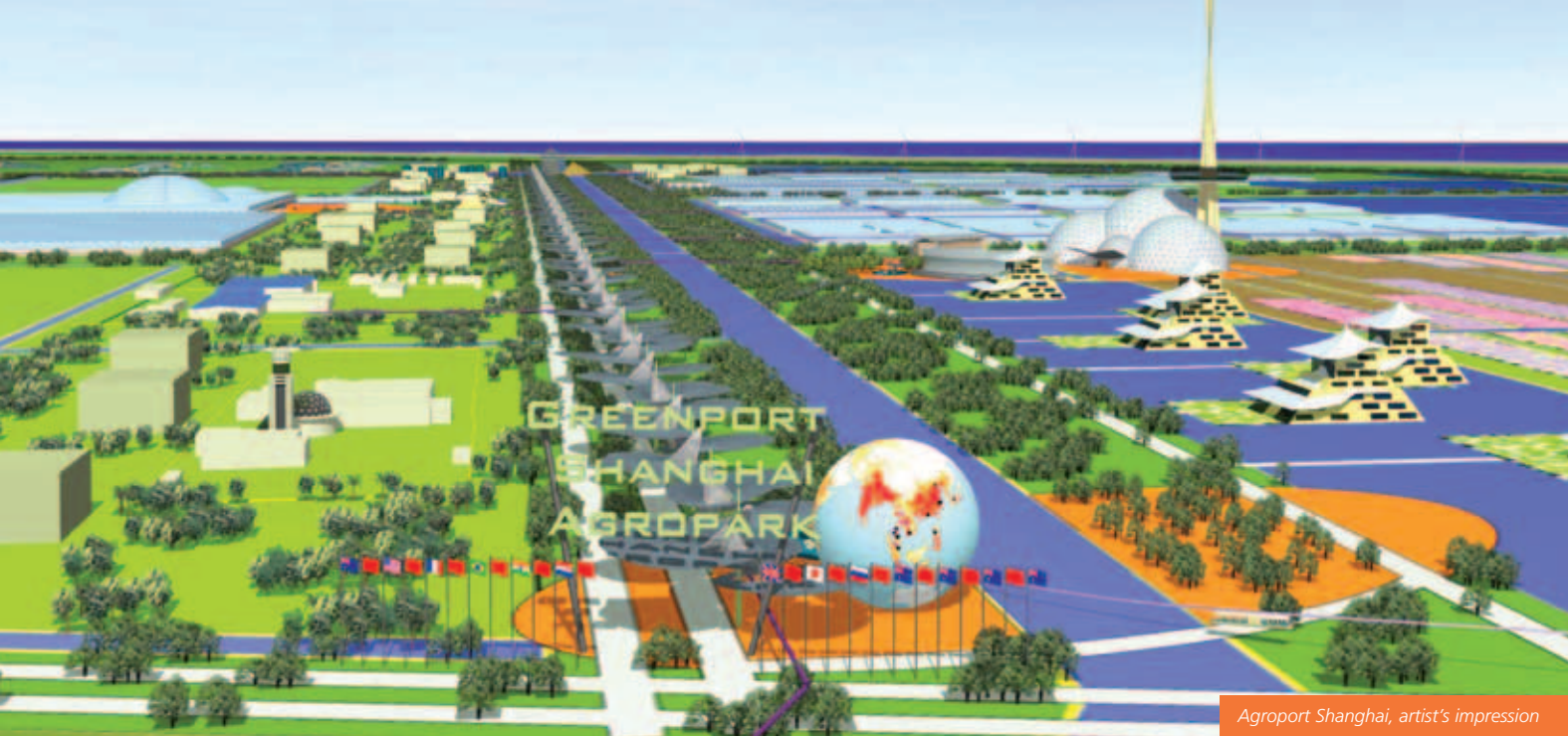
Fish-breeding in combination with tomato-cultivation, photo Priva

Joining forces for a sustainable future not just by jointly drawing up plans but also by investing and harvesting together

Drawing up plans alone is not sufficient for the imperative of more sustainable development: this also calls for innovations in everyday practice. These arise only from joint investment and harvesting. That shared responsibility calls for new roles and actions on the part of both public and private actors.

Knowledge alone is insufficient

Innovations contributing to the more sustainable development of the Dutch agrosector require more than just knowledge. The adjustment of the Dutch knowledge infrastructure is therefore not sufficient in itself. TransForum's experience indicates that apart from innovative knowledge with practical applications, all sorts of other factors play a role in the successful development of more sustainable agribusiness, such as professional entrepreneurship and a willingness to invest in innovations.



Agro-innovation system required

In the case of TransForum's successful practical projects, the right circumstances were created for each particular project to flourish. We will need to set up an agro-innovation system together to facilitate this on a wider scale.

This calls for a coherent system in which the barriers on which innovations often founder are eliminated. Highly divergent actors, both public and private, need to have a role in such an agro-innovation system. Apart from knowledge institutes, entrepreneurs, non-governmental organizations and governments, project developers and investors will certainly also need to be involved.

The development of such an agro-innovation system is vital for the genuinely more sustainable development of Dutch agriculture.

TransForum is taking the initiative to put all the parties who should play a role in this regard in touch with one another in order to come up with a joint blueprint. The ambition is to have the outlines of this blueprint ready at the end of 2010, when TransForum will cease to exist. In this way, it will not just be a matter of proposals for the more sustainable development of the agrosector: our aim is to establish the necessary conditions in practice, together with various parties whose involvement is indispensable.



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